

Amendments to the Claims

Please amend the claim as listed below without prejudice. This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) A pulse power supply device for supplying a bipolar pulse current to an inductive load with high repetition and regenerating for recovering residual magnetic energy of a system so as to use it for a next discharge, wherein comprising:

a bridge circuit including a first pair of two inverse-conductive semiconductor switches and a second pair of two inverse-conductive semiconductor switches;

an energy source capacitor initially charged is connected to a DC terminal of a the bridge circuit composed of four inverse-conductive semiconductor switches, and the inductive load is connected to its AC terminal; and

a control circuit for giving a control signal to gates of the inverse-conductive semiconductor switches and controlling an on/off state of the semiconductor switches controlling the first and second pairs of the inverse-conductive semiconductor switches positioned diagonally on the bridge circuit so that when the two inverse-conductive semiconductor switches in the first pair are controlled to turn on simultaneously or alternately, the control circuit controls the two inverse-conductive semiconductor switches in the second pair to be off, and so that when the two inverse-conductive semiconductor switches in the second pair are controlled to turn on simultaneously or alternately, the control circuit controls the two inverse-conductive semiconductor switches in the first pair to be off; is further provided,

wherein the inductive load is connected to an AC terminal of the bridge circuit the control circuit controls pairs of the four inverse-conductive semiconductor switches composing the bridge circuit positioned on diagonal lines, respectively, so that the pairs are turned on simultaneously or alternately, and controls the pairs so that when at least one of the paired two inverse-conductive semiconductor switches is on, the other paired inverse-conductive semiconductor switches are off.

2. (Currently Amended) The pulse power supply device using regenerating recovered magnetic energy according to claim 1, wherein an AC a low voltage large

~~current~~ power supply is inserted in series with the inductive load for replenishing the energy source capacitor with a lost energy so as to replenish lost energy due to discharge so as to increase or decrease a next discharge current.

3. (Currently Amended) The pulse power supply device using regenerating recovered magnetic energy according to claim 1, wherein the inverse-conductive semiconductor switches are any one kind of power MOSFETs, inverse-conductive GTO thyristors and units constituted so that diodes and semiconductor switches such as IGBT and the like are connected in parallel.

4. (Currently Amended) The pulse power supply device using regenerating recovered magnetic energy according to claims 1, wherein one of the first and second two pairs of inverse-conductive semiconductor switches is replaced by diodes.

5. (Currently Amended) The pulse power supply device using regenerating recovered magnetic energy according to claim 2, wherein the inverse-conductive semiconductor switches are any one kind of power MOSFETs, inverse-conductive GTO thyristors and units constituted so that diodes and semiconductor switches such as IGBT and the like are connected in parallel.

6. (Currently Amended) The pulse power supply device using regenerating recovered magnetic energy according to claim 2, wherein one of the first and second two pairs of inverse-conductive semiconductor switches is replaced by diodes.

7. (Currently Amended) The pulse power supply device using regenerating recovered magnetic energy according to claim 3, wherein one of the first and second two pairs of inverse-conductive semiconductor switches is replaced by diodes.